

SEQUENCE LISTING

<110> Eli Lilly and Company

<120> FSH AND FSH VARIANT FORMULATIONS, PRODUCTS AND METHODS

<130> X12383M Sequence Listing

<140>

<141>

<150> 60/093906

<151> 1998-07-23

<150> 60/094611

<151> 1998-07-30

<150> 60/094767

<151> 1998-07-31

<150> 60/098711

<151> 1998-09-01

<150> 60/100696

<151> 1998-09-17

<160> 20

<170> PatentIn Ver. 2.0

<210> 1

<211> 96

<212> PRT

<213> mammalian

<400> 1

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Phe | Pro | Asp | Gly | Glu | Phe | Thr | Met | Gln | Gly | Cys | Pro | Glu | Cys | Lys | Leu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Glu | Asn | Lys | Tyr | Phe | Ser | Lys | Pro | Asp | Ala | Pro | Ile | Tyr | Gln | Cys |
| | | 20 | | | | | | 25 | | | | | | 30 | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Cys | Cys | Phe | Ser | Arg | Ala | Tyr | Pro | Thr | Pro | Ala | Arg | Ser | Lys |
| | | 35 | | | | | 40 | | | | | 45 | | | |

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Thr | Met | Leu | Val | Pro | Lys | Asn | Ile | Thr | Ser | Glu | Ala | Thr | Cys | Cys |
| | 50 | | | | | | 55 | | | | | | 60 | | |

Val Ala Lys Ala Phe Thr Lys Ala Thr Val Met Gly Asn Val Arg Val
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Glu Asn His Thr Glu Cys His Cys Ser Thr Cys Tyr Tyr His Lys Ser
85 90 95

<210> 2

<211> 111

<212> PRT

<213> mammalian

<400> 2

Arg Ser Cys Glu Leu Thr Asn Ile Thr Ile Thr Val Glu Lys Glu Glu
1 5 10 15

Cys Gly Phe Cys Ile Ser Ile Asn Thr Thr Trp Cys Ala Gly Tyr Cys
20 25 30

Tyr Thr Arg Asp Leu Val Tyr Arg Asp Pro Ala Arg Pro Asn Ile Gln
35 40 45

Lys Thr Cys Thr Phe Lys Glu Leu Val Tyr Glu Thr Val Lys Val Pro
50 55 60

Gly Cys Ala His His Ala Asp Ser Leu Tyr Thr Tyr Pro Val Ala Thr
65 70 75 80

Glu Cys His Cys Ser Lys Cys Asp Ser Asp Ser Thr Asp Cys Thr Val
85 90 95

Arg Gly Leu Gly Pro Ser Tyr Cys Ser Phe Arg Glu Ile Lys Glu
100 105 110

<210> 3

<211> 96

<212> PRT

<213> mammalian

<400> 3

Phe Pro Asp Gly Glu Phe Thr Thr Gln Asp Cys Pro Glu Cys Lys Leu
1 5 10 15

Arg Glu Asn Lys Tyr Phe Phe Lys Leu Gly Val Pro Ile Tyr Gln Cys

| | |
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| $\langle 210 \rangle$ | 5 |
| $\langle 211 \rangle$ | 92 |

<212> PRT

<213> Homo sapiens

<400> 5

Ala Pro Asp Val Gln Asp Cys Pro Glu Cys Thr Leu Gln Glu Asn Pro
 1 5 10 15

Phe Phe Ser Gln Pro Gly Ala Pro Ile Leu Gln Cys Met Gly Cys Cys
 20 25 30

Phe Ser Arg Ala Tyr Pro Thr Pro Leu Arg Ser Lys Lys Thr Met Leu
 35 40 45

Val Gln Lys Asn Val Thr Ser Glu Ser Thr Cys Cys Val Ala Lys Ser
 50 55 60

Tyr Asn Arg Val Thr Val Met Gly Gly Phe Lys Val Glu Asn His Thr
 65 70 75 80

Ala Cys His Cys Ser Thr Cys Tyr Tyr His Lys Ser
 85 90

<210> 6

<211> 111

<212> PRT

<213> Homo sapiens

<400> 6

Asn Ser Cys Glu Leu Thr Asn Ile Thr Ile Ala Ile Glu Lys Glu Glu
 1 5 10 15

Cys Arg Phe Cys Ile Ser Ile Asn Thr Thr Trp Cys Ala Gly Tyr Cys
 20 25 30

Tyr Thr Arg Asp Leu Val Tyr Lys Asp Pro Ala Arg Pro Lys Ile Gln
 35 40 45

Lys Thr Cys Thr Phe Lys Glu Leu Val Tyr Glu Thr Val Arg Val Pro
 50 55 60

Gly Cys Ala His His Ala Asp Ser Leu Tyr Thr Tyr Pro Val Ala Thr
 65 70 75 80

Gln Cys His Cys Gly Lys Cys Asp Ser Asp Ser Thr Asp Cys Thr Val
 85 90 95

Arg Gly Leu Gly Pro Ser Tyr Cys Ser Phe Gly Glu Met Lys Glu

100

105

110

<210> 7

<211> 96

<212> PRT

<213> mammalian

<400> 7

Phe Pro Asp Gly Glu Phe Thr Met Gln Gly Cys Pro Glu Cys Lys Leu
 1 5 10 15

Lys Glu Asn Lys Tyr Phe Ser Lys Leu Gly Ala Pro Ile Tyr Gln Cys
 20 25 30

Met Gly Cys Cys Phe Ser Arg Ala Tyr Pro Thr Pro Ala Arg Ser Lys
 35 40 45

Lys Thr Met Leu Val Pro Lys Asn Ile Thr Ser Glu Ala Thr Cys Cys
 50 55 60

Val Ala Lys Ala Phe Thr Lys Ala Thr Val Met Gly Asn Ala Arg Val
 65 70 75 80

Glu Asn His Thr Glu Cys His Cys Ser Thr Cys Tyr Tyr His Lys Ser
 85 90 95

<210> 8

<211> 111

<212> PRT

<213> mammalian

<400> 8

Asn Ser Cys Glu Leu Thr Asn Ile Thr Ile Thr Val Glu Lys Glu Glu
 1 5 10 15

Cys Asn Phe Cys Ile Ser Ile Asn Thr Thr Trp Cys Ala Gly Tyr Cys
 20 25 30

Tyr Thr Arg Asp Leu Val Tyr Lys Asp Pro Ala Arg Pro Asn Ile Gln
 35 40 45

Lys Thr Cys Thr Phe Lys Glu Leu Val Tyr Glu Thr Val Lys Val Pro
 50 55 60

Gly Cys Ala His His Ala Asp Ser Leu Tyr Thr Tyr Pro Val Ala Thr
65 70 75 80

Glu Cys His Cys Gly Lys Cys Asp Ser Asp Ser Thr Asp Cys Thr Val
85 90 95

Arg Gly Leu Gly Pro Ser Tyr Cys Ser Phe Ser Glu Met Lys Glu
100 105 110

<210> 9

<211> 96

<212> PRT

<213> mammalian

<400> 9

Phe Pro Asp Gly Glu Phe Thr Met Gln Gly Cys Pro Glu Cys Lys Leu
1 5 10 15

Lys Glu Asn Lys Tyr Phe Ser Lys Pro Asp Ala Pro Ile Tyr Gln Cys
20 25 30

Met Gly Cys Cys Phe Ser Arg Ala Tyr Pro Thr Pro Ala Arg Ser Lys
35 40 45

Lys Thr Met Leu Val Pro Lys Asn Ile Thr Ser Glu Ala Thr Cys Cys
50 55 60

Val Ala Lys Ala Phe Thr Lys Ala Thr Val Met Gly Asn Val Arg Val
65 70 75 80

Glu Asn His Thr Glu Cys His Cys Ser Thr Cys Tyr Tyr His Lys Ser
85 90 95

<210> 10

<211> 111

<212> PRT

<213> mammalian

<400> 10

Arg Ser Cys Glu Leu Thr Asn Ile Thr Ile Thr Val Glu Lys Glu Glu
1 5 10 15

Cys Ser Phe Cys Ile Ser Ile Asn Thr Thr Trp Cys Ala Gly Tyr Cys
20 25 30

Tyr Thr Arg Asp Leu Val Tyr Lys Asp Pro Ala Arg Pro Asn Ile Gln
35 40 45

Lys Ala Cys Thr Phe Lys Glu Leu Val Tyr Glu Thr Val Lys Val Pro
50 55 60

Gly Cys Ala His His Ala Asp Ser Leu Tyr Thr Tyr Pro Val Ala Thr
65 70 75 80

Glu Cys His Cys Gly Lys Cys Asp Arg Asp Ser Thr Asp Cys Thr Val
85 90 95

Arg Gly Leu Gly Pro Ser Tyr Cys Ser Phe Ser Asp Ile Arg Glu
100 105 110

<210> 11

<211> 108

<212> PRT

<213> Homo sapiens

<400> 11

Asn Ser Cys Glu Leu Thr Asn Ile Thr Ile Ala Ile Glu Lys Glu Glu
1 5 10 15

Cys Arg Phe Cys Ile Ser Ile Asn Thr Thr Trp Cys Ala Gly Tyr Cys
20 25 30

Tyr Thr Arg Asp Leu Val Tyr Lys Asp Pro Ala Arg Pro Lys Ile Gln
35 40 45

Lys Thr Cys Thr Phe Lys Glu Leu Val Tyr Glu Thr Val Arg Val Pro
50 55 60

Gly Cys Ala His His Ala Asp Ser Leu Tyr Thr Tyr Pro Val Ala Thr
65 70 75 80

Gln Cys His Cys Gly Lys Cys Asp Ser Asp Ser Thr Asp Cys Thr Val
85 90 95

Arg Gly Leu Gly Pro Ser Tyr Cys Ser Phe Gly Glu
100 105

<210> 12

<211> 109
 <212> PRT
 <213> Homo sapiens

<400> 12

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Ser | Cys | Glu | Leu | Thr | Asn | Ile | Thr | Ile | Ala | Ile | Glu | Lys | Glu | Glu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Cys | Arg | Phe | Cys | Ile | Ser | Ile | Asn | Thr | Thr | Trp | Cys | Ala | Gly | Tyr | Cys |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Tyr | Thr | Arg | Asp | Leu | Val | Tyr | Lys | Asp | Pro | Ala | Arg | Pro | Lys | Ile | Gln |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Lys | Thr | Cys | Thr | Phe | Lys | Glu | Leu | Val | Tyr | Glu | Thr | Val | Arg | Val | Pro |
| | 50 | | | | | 55 | | | | | | 60 | | | |
| Gly | Cys | Ala | His | His | Ala | Asp | Ser | Leu | Tyr | Thr | Tyr | Pro | Val | Ala | Thr |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |
| Gln | Cys | His | Cys | Gly | Lys | Cys | Asp | Ser | Asp | Ser | Thr | Asp | Cys | Thr | Val |
| | | | | 85 | | | | | 90 | | | | | 95 | |
| Arg | Gly | Leu | Gly | Pro | Ser | Tyr | Cys | Ser | Phe | Gly | Glu | Met | | | |
| | | 100 | | | | | | 105 | | | | | | | |

<210> 13
 <211> 110
 <212> PRT
 <213> Homo sapiens

<400> 13

| | | | | | | | | | | | | | | | |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asn | Ser | Cys | Glu | Leu | Thr | Asn | Ile | Thr | Ile | Ala | Ile | Glu | Lys | Glu | Glu |
| 1 | | | | 5 | | | | | 10 | | | | | 15 | |
| Cys | Arg | Phe | Cys | Ile | Ser | Ile | Asn | Thr | Thr | Trp | Cys | Ala | Gly | Tyr | Cys |
| | | | 20 | | | | | 25 | | | | | 30 | | |
| Tyr | Thr | Arg | Asp | Leu | Val | Tyr | Lys | Asp | Pro | Ala | Arg | Pro | Lys | Ile | Gln |
| | | 35 | | | | | 40 | | | | | 45 | | | |
| Lys | Thr | Cys | Thr | Phe | Lys | Glu | Leu | Val | Tyr | Glu | Thr | Val | Arg | Val | Pro |
| | 50 | | | | | 55 | | | | | | 60 | | | |
| Gly | Cys | Ala | His | His | Ala | Asp | Ser | Leu | Tyr | Thr | Tyr | Pro | Val | Ala | Thr |
| 65 | | | | | 70 | | | | | 75 | | | | | 80 |

Gln Cys His Cys Gly Lys Cys Asp Ser Asp Ser Thr Asp Cys Thr Val
 85 90 95

Arg Gly Leu Gly Pro Ser Tyr Cys Ser Phe Gly Glu Met Lys
 100 105 110

<210> 14

<211> 276

<212> DNA

<213> Homo sapiens

<400> 14

gctcctgatg tgcaggattg cccagaatgc acgctacagg aaaacccatt cttctcccag 60
 ccgggtgccc caataacttca gtgcatgggc tgctgcttct ctagagcata tcccactcca 120
 ctaagggtcca agaagacgat gttggtccaa aagaacgtca cctcagagtc cacttgctgt 180
 gtagctaaat catataacag ggtcacagta atgggggggt tcaaagtgga gaaccacacg 240
 gcgtgccact gcagtacttg ttattatcac aaatct 276

<210> 15

<211> 324

<212> DNA

<213> Homo sapiens

<400> 15

aatagctgtg agctgaccaa catcaccatt gcaatagaga aagaagaatg tcgtttctgc 60
 ataagcatca acaccacttg gtgtgctggc tactgctaca ccagggatct ggtgtataag 120
 gaccagcca ggcccaaaat ccagaaaaca tgtaccttca aggaactggt atatgaaaca 180
 gtgagagtgc ccggctgtgc tcaccatgca gattccttgt atacataccc agtggccacc 240
 cagtgtcact gtggcaagtg tgacagcgac agcactgatt gtactgtgcg aggccctggg 300
 cccagctact gtccttttgg tgaa 324

<210> 16

<211> 327

<212> DNA

<213> Homo sapiens

<400> 16

aatagctgtg agctgaccaa catcaccatt gcaatagaga aagaagaatg tcgtttctgc 60
 ataagcatca acaccacttg gtgtgctggc tactgctaca ccagggatct ggtgtataag 120
 gaccagcca ggcccaaaat ccagaaaaca tgtaccttca aggaactggt atatgaaaca 180
 gtgagagtgc ccggctgtgc tcaccatgca gattccttgt atacataccc agtggccacc 240
 cagtgtcact gtggcaagtg tgacagcgac agcactgatt gtactgtgcg aggccctggg 300
 cccagctact gtccttttgg tgaaatg 327

<210> 17

<211> 330

<212> DNA

<213> Homo sapiens

<400> 17

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aatagctgtg agctgaccaa catcaccatt gcaatagaga aagaagaatg tcgtttctgc 60
ataagcatca acaccacttg gtgtgctggc tactgctaca ccagggatct ggtgtataag 120
gacccagcca ggcccaaaat ccagaaaaca tgtaccttca aggaactggg atatgaaaca 180
gtgagagtgc ccggctgtgc tcaccatgca gattccttgt atacataccc agtggccacc 240
cagtgtcact gtggcaagtg tgacagcgac agcactgatt gtactgtgcg aggctgggg 300
cccagctact gtccttttg tgaaatgaaa 330
```

<210> 18

<211> 333

<212> DNA

<213> Homo sapiens

<400> 18

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aatagctgtg agctgaccaa catcaccatt gcaatagaga aagaagaatg tcgtttctgc 60
ataagcatca acaccacttg gtgtgctggc tactgctaca ccagggatct ggtgtataag 120
gacccagcca ggcccaaaat ccagaaaaca tgtaccttca aggaactggg atatgaaaca 180
gtgagagtgc ccggctgtgc tcaccatgca gattccttgt atacataccc agtggccacc 240
cagtgtcact gtggcaagtg tgacagcgac agcactgatt gtactgtgcg aggctgggg 300
cccagctact gtccttttg tgaaatgaaa gaa 333
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<210> 19

<211> 276

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Modified to facilitate cloning.

<400> 19

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gctcctgatg tgcaggattg ccagaaatgc acgctacagg aaaaccatt cttctcccag 60
ccgggtgccc caatacttca gtgcatgggc tgctgcttct caagagcata tcccactcca 120
ctaagggtcca agaagacgat gttggtccaa aagaacgtca cctcagagtc cacttgctgt 180
gtagctaaat catataacag ggtcacagta atgggggggt tcaaagtgga gaaccacacg 240
gcgtgccact gcagtacttg ttattatcac aaatct 276
```

<210> 20

<211> 324

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Modified to facilitate cloning.

<400> 20

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aacagctgtg agctcaccaa catcaccatt gcaatagaga aagaagaatg tcgtttctgc 60
atatgatca acaccacttg gtgtgctggc tactgctaca ccagggatct ggtgtataag 120
gaccgggccc gtcccaaat ccagaaaaca tgtaccttca aggaactggt atatgaaaca 180
gtacgctgc cggctgtgc tcaccatgca gattccttgt atacataccc agtggccacc 240
cagtgtcact gtggcaagtg tgacagcgac agcactgatt gtactgtgcg aggcctgggg 300
cccagctact gtccttttgg tgaa 324
```